

3.5 Graphing Cosecant & Secant Functions

Name _____ Date _____ Period _____

Find the exact value of each expression.

1. $\sec\left(\frac{\pi}{3}\right)$

2. $\csc\left(-\frac{\pi}{4}\right)$

3. $\sec\left(\frac{\pi}{2}\right)$

4. $\csc(\pi)$

Find the approximate value of each expression to the nearest tenth.

5. $\sec(1.56)$

6. $\csc(0.01)$

Determine the period and range of each function.

7. $f(x) = \csc\left(\frac{3x}{2}\right)$

8. $f(x) = \sec(2\pi x)$

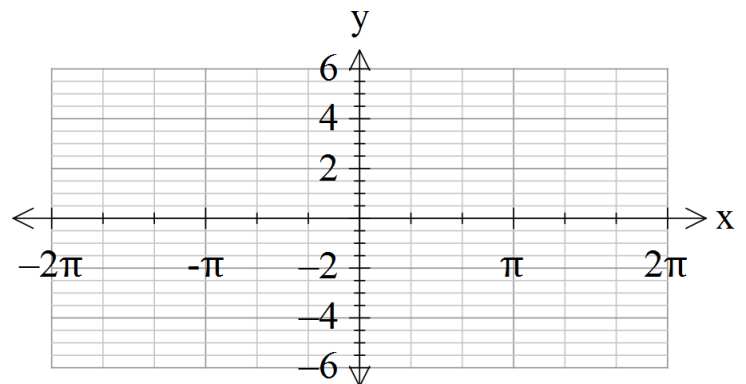
9. $f(x) = 2\sec(x)$

10. $f(x) = \frac{1}{3}\csc(x)$

Sketch at least one cycle of the graph of each function. Determine the period, asymptotes, and the range of each function. Make a table of the key points.

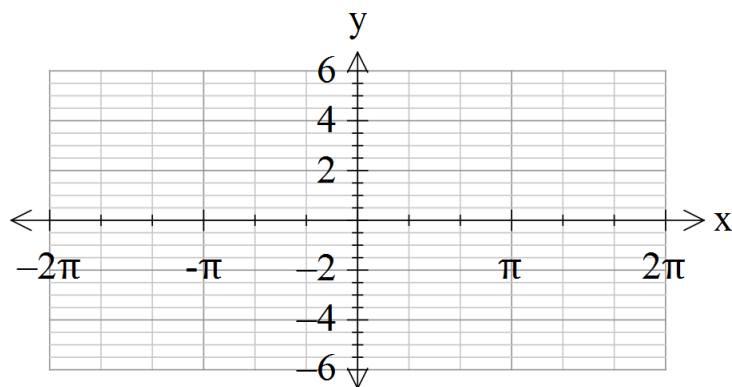
11. $f(x) = 2\sec(x)$

x	f(x)



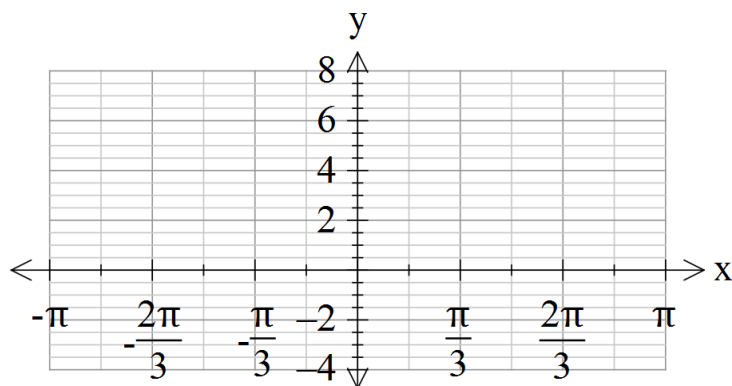
12. $f(x) = \sec\left(x + \frac{\pi}{4}\right)$

x	f(x)



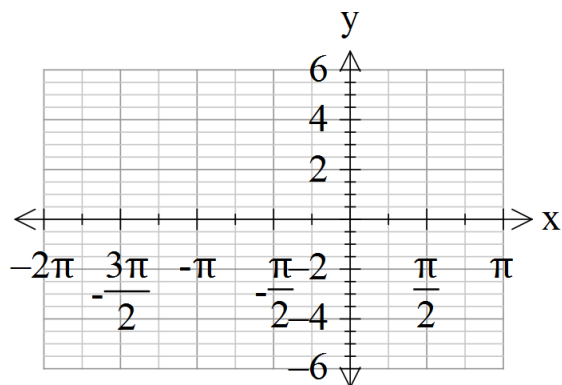
13. $f(x) = 2 + 2\sec(2x)$

x	f(x)



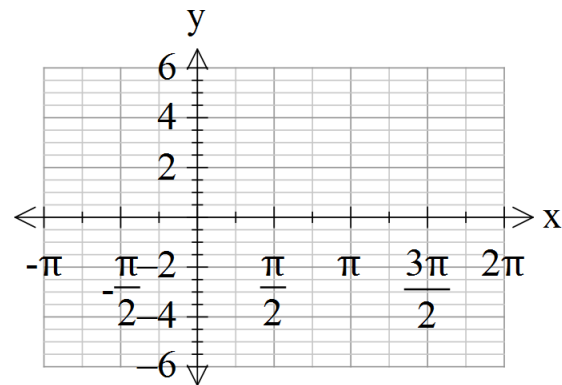
14. $f(x) = -\csc\left(x + \frac{\pi}{2}\right)$

x	f(x)



15. $f(x) = \csc\left(2x - \frac{\pi}{2}\right)$

x	f(x)



Write an equation for each curve in its final position.

16. The graph of $f(x) = \sec(x)$ is shifted $\frac{\pi}{2}$ units to the right and 1 unit upward.

17. The graph of $f(x) = \csc(x)$ is reflected across the x-axis, shifted 1 unit to the left, then shifted 4 units upward.

Find the equations for all vertical asymptotes for each function.

18. $f(x) = -\sec(x)$

19. $f(x) = \frac{1}{2}\csc(2x) + 4$

Review Exercises (Show all work!)

Convert each angle from degrees to radians.

20. 48°

21. 18°

Convert each angle from radians to degrees.

22. $\frac{17\pi}{12}$

23. $\frac{5\pi}{4}$

Find the length of the arc intercepted by the given central angle α in a circle of radius r . Round answers to nearest tenth.

24. $\alpha = 1$, $r = 4$ cm

25. $\alpha = 60^\circ$, $r = 2$ m